

REMARKS

The Office Action of July 9, 2008, has been carefully reviewed, and in view of the above amendments and the following remarks, reconsideration and allowance of the pending claims are respectfully requested.

In the above Office Action, the Examiner objected to the specification for various informalities. In addition, claims 20, 21 and 30 were rejected under 35 U.S.C. § 102(b) as being anticipated by Sakemi et al. (U.S. Patent No. 5,655,704); claims 22-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakemi et al. in view of Yoshihiro et al. (Japanese Patent No. 9-148332); and claim 29 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakemi et al. in view of Inoue et al. (U.S. Patent No. 6,402,014).

As set forth above, the specification has been amended in accordance with the Examiner's suggestions. Applicants thus contend that the informalities noted by the Examiner have been corrected.

With respect to the rejections over the prior art, claim 20 has been amended as set forth above to recite a head including a means for gathering conductive balls toward an area that is part of a surface of the mask, a head supporting device for supporting the head and moving the head along the surface of the mask, and a ball supplying device for supplying conductive balls to the area, the ball supplying device being mounted on the head supporting device and moving together with the head. As described in the specification, the ball supplying device 60 is mounted on the head supporting device and moves (by way of carriage 52) with the head and the area to which the conductive balls are supplied. The ball supplying device can thereby supply the conductive balls to the area while the head is moving based upon

time intervals or ball density in the area. Claim 36 has been newly added to clarify this last point. By supplying the conductive balls during movement of the head and the area, the density of the balls in the area can be maintained within a certain range for effectively filling the balls into the apertures 12 of the mask and thereby keeps the conductive balls fresh, i.e., not damaged, as described in Paragraphs [0013] and [0047] of the publication of this application.

The primary reference relied upon by the Examiner, Sakemi et al., discloses a template 4 with holes 4a to be filled with soldering balls 3. A soldering ball container 12 is mounted so as to be shifted horizontally along the surface of the template 4 in a circular or spiral manner. The container 12 of Sakemi does not appear to include any "means for gathering conductive balls toward an area that is part of a surface of the mask" as recited in claim 20. Rather, the balls 3 roll on the surface of the template 4 and fall into through holes 4a by free fall one by one. See, col. 6, lines 17-20. Moreover, the soldering ball container 12 is filled by a soldering ball supply tank 14 fixedly supported on an arm extending from the template guide 6. Col. 4, lines 24-28. Hence, the ball supply tank 14 is fixed in the standby area and cannot move with the ball container 12, in contrast to the claimed ball supplying device which is mounted on the head supporting device for movement together with the head.

Accordingly, Applicants respectfully submit that Sakemi et al. fail to disclose or suggest a "means for gathering conductive balls toward an area that is part of a surface of the mask" or a "ball supplying device for supplying conductive balls to the area, the ball supplying device being mounted on the head supporting device and moving together with the head" as recited above in amended claim 20.

The remaining claims depend either directly or indirectly from claim 20 and are therefore patentable based at least on their dependence therefrom.

In addition, dependent claim 22 further recites that "the means for gathering conductive balls moves conductive balls, by rotating the head, toward the area that is a circular area centered on a center of rotation of the head." In rejecting claim 22, the Examiner further relies upon the disclosure of Yoshihiro et al. for allegedly teaching that "the means (24a & 24b) for gathering conductive balls moves conductive balls (2), by rotating the head, toward the area that is a circular area (21a) centered on a center of rotation of the head...". Office Action, page 5.

Applicants respectfully disagree with the Examiner's interpretation of Yoshihiro. That is, Applicants contend that Yoshihiro et al. does not show how to gather balls to the center of the rotation of the head but rather, in Yoshihiro et al, the balls only circulate around the outer periphery of the circle due to the presence of central wall 21c (see Fig. 4) and are not gathered to the center of rotation. Accordingly, Applicants respectfully submit that claims 22-28 are not rendered obvious by the cited prior art.

CONCLUSION

In view of the above amendments and remarks, Applicants respectfully submit that the claims of the present application are now in condition for allowance, and an early indication of the same is earnestly solicited.

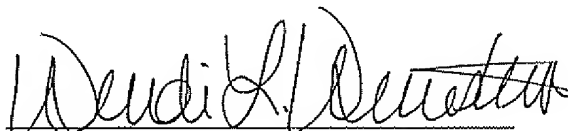
Should any questions arise in connection with this application or should the Examiner believe that a telephone conference would be helpful in resolving any remaining issues pertaining to this application; the Examiner is kindly invited to call the undersigned counsel for Applicants regarding the same.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: October 8, 2008

By:

A handwritten signature in black ink, appearing to read "Wendi L. Weinstein", written over a horizontal line.

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